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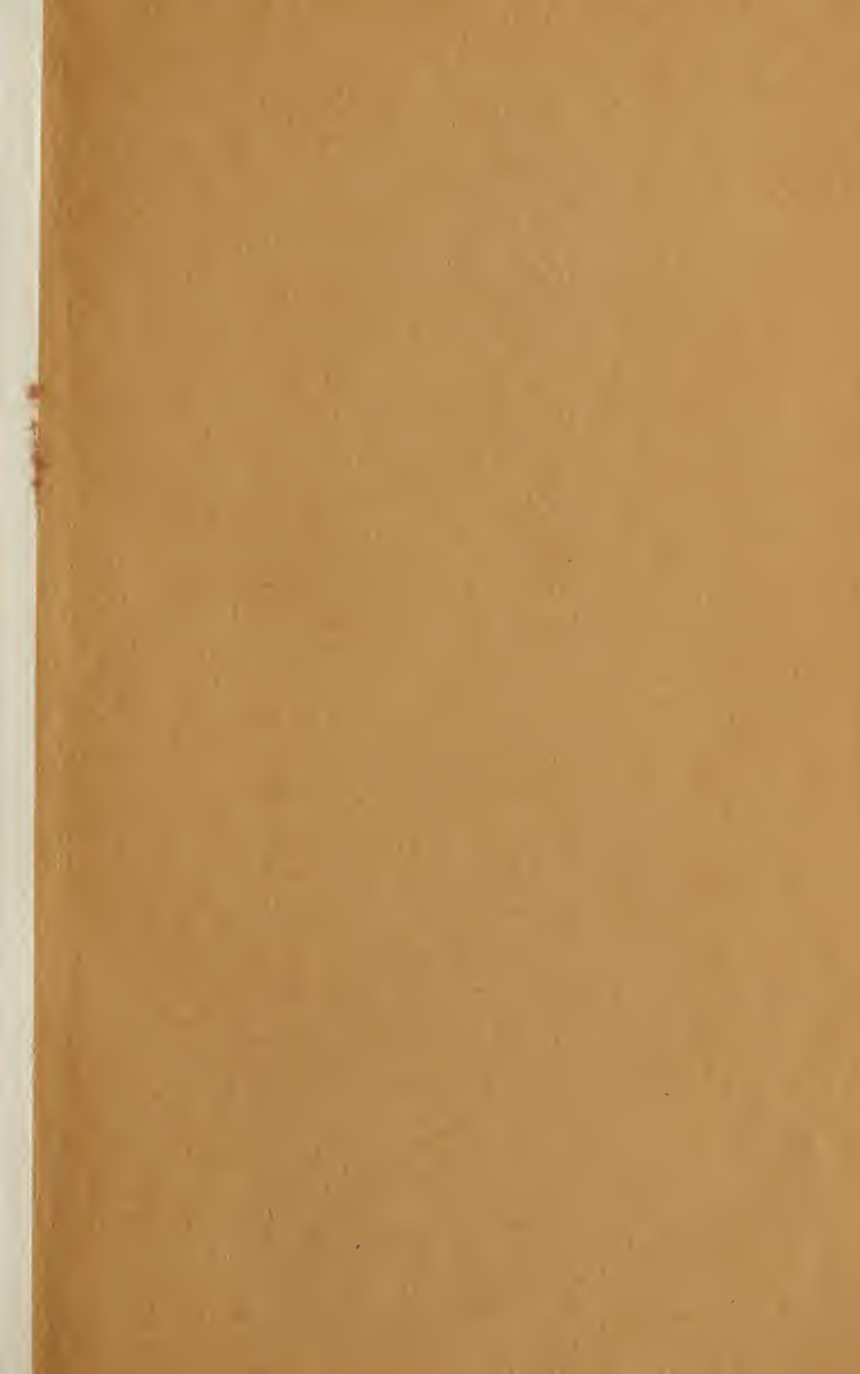
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ARTEFACTA ANTIQUISSIMA:

GEOLOGY IN ITS RELATION TO PRIMEVAL MAN.

BY

HENRY DUCKWORTH, ESQ., F.R.G.S., F.G.S.

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ARTEFACTA ANTIQUISSIMA:

GEOLOGY IN ITS RELATION TO PRIMEVAL MAN.

THE discovery of works of human art in caverns and in superficial deposits, associated with remains of animals hitherto supposed to have become extinct before the introduction of man upon the earth, is a subject at present attracting no small amount of attention in the scientific world.

In the following notes I have endeavoured to draw up an analysis of the principal facts relating to this question, and I trust they may prove of service to those who have had no opportunities of collecting the scattered evidence themselves.

It is eleven years since M. Boucher de Perthes, the well-known archæologist of Abbeville, published the first part of his celebrated "*Antiquités Celtiques et Antédiluviennes*."*

In this book, amongst other remarkable statements, he related how he had discovered in beds of undisturbed diluvial gravel in the valley of the Somme, flint instruments—evidently worked by the hand of man—associated with remains of the Mammoth (*Elephas primigenius*,) and other extinct animals.

* Paris, 1847, (imprimé en 1847, publié en 1849.)

This singular announcement, strange to say, hardly excited any attention at the time. Men of science ridiculed the very idea, and were incredulous. Such treatment might perhaps have cooled the ardour of any other man than M. de Perthes; but he only carried on his researches with redoubled energy, and after a lapse of eight years, the second part of his work appeared, in which he boldly re-asserted his former opinions.

In the following year, (1858,) facts of a somewhat kindred nature were elucidated at Brixham, in Devonshire. A cavern abounding in fossil remains having been discovered there, the Royal Society voted a grant for its examination, and the exploration was entrusted to Dr. Falconer and Mr. Pengelly.

From the preliminary reports it appears that the principal remains brought to light so far are those of *Rhinoceros tichorhinus*, *Bos*, *Equus*, *Cervus tarandus*, *Ursus spelæus*, and *Hyæna*—and curiously enough,—a great number of flint knives and arrow heads, evidently of human manufacture, were discovered indiscriminately commingled with them. One in particular was found immediately beneath a fine antler of a reindeer and a bone of the cave bear, which were imbedded in the superficial stalagmite in the middle of the cave.*

This remarkable revelation naturally reminded Dr. Falconer of M. de Perthes' discoveries, and having proceeded to Abbeville to inspect that gentleman's magnificent collection of worked flints, he returned thoroughly convinced of their genuineness, and at his instigation Mr. Prestwich was persuaded to cross the channel and to examine the gravel beds in the valley of the Somme. Mr. Prestwich who informs us that he undertook the inquiry full of doubt,† went towards the end of April last year to Amiens, where he found the gravel-beds of St. Acheul capping a low chalk-hill a mile S.E.

* Abstract Proceedings Geol. Soc., 22nd June, 1859.

† Proceedings of the Royal Society, 26th May, 1859.

of the city, about 100 feet above the level of the Somme, and not commanded by any higher ground.

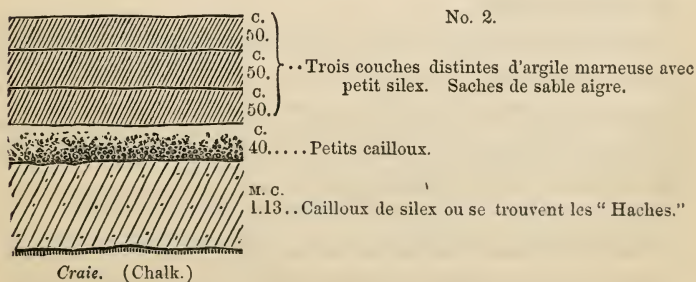
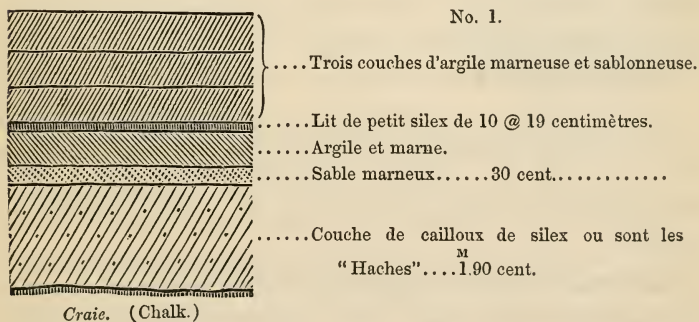
The beds, as determined by him, consisted of —

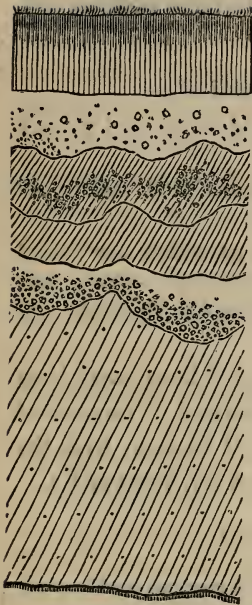
1st.—Brown brick-earth (with old tombs and coins,) 10 to 15 feet.

2nd.—White marl containing recent land and fresh-water shells, 2 to 8 feet.

3rd.—Coarse sub-angular gravel in which are found bones of *elephas*, *equus*, *bos* and *cervus*, and the flint instruments, ("Langues de chats" of the workmen,) 6 to 12 feet.

Mons. Pinsard, of Amiens, with whom I have lately been in correspondence, has kindly sent me drawings of sections of these beds, and his classification, as will be seen from the annexed cuts is rather more elaborate than Mr. Prestwich's.





Hauteur moyenne.

1.00.....Terre végétale argileuse.

C.

.75.....Lit de petits cailloux.

C.

.75.....Argile marneuse.

C. M.

.90 @ 1.00....Autre couche distincte de la première.

C.

.30 @ .80Sable aigre mêlé de gravier.

M. C.

2.90 environ...Couche de cailloux dans laquelle se trouvent les "Haches" et les dents d'éléphants et de cheval.

Craie. (Chalk.)

The irregularity in the stratification of these beds is a point on which M. Pinsard particularly dwells, and I will here state what he says respecting it in a letter addressed to me —

"La stratification du diluvium de St. Acheul est très irrégulière, et les coupes que je vous donne aujourd'hui ne sont que des moyennes."

"Lorsque les ouvriers ont avancé les tranchées de quelques mètres, la hauteur de gravier varie très sensiblement; la hauteur du banc de gravier dans lequel se trouvent les Haches varie de 2 à 4 mètres, mais la hauteur moyenne est de 2 mètres 90 centimètres environ."

"Les couches supérieures indiquent plusieurs dépôts, ces sont des argiles, des glaises, et des bancs de petits cailloux, (aussi des bancs faibles de Sable Aigre.) les couches d'argile

“qui sont voisines des cailloux sont très marneuses et c’est dans ces couches que se trouvent beaucoup de coquilles décrites par Mr. Prestwich.”

“Ou trouve tous les jours de Haches, très souvent des dents de cheval et rarement des dents d’éléphants; ces objets sont dans les couches de gravier posée sur la craie.

“Les dépôts de St. Acheul, sont curieux à cause de leur irrégularité. Si on mettait le gravier à peu on n’aurait pas une surface ondulée mais une surface composée de petits cones à peu près semblables aux dunes de la Yeu près St. Valery-en-Mer.”

“Je n’ai pas remarqué que les couches inclinent vers la vallée de Somme plutôt qu’autrement.”

“L’irrégularité existe partout; les couches supérieures seulement sont plaines.”

“Du sol de la craie audessus de la terre végétale, on peut toujours compter 6 à 8 dépôts et quelquefois 10. Vous le voyez l’irrégularité est grande et les couches donnent des époques différentes.

“Les ‘*Haches*’ se trouvent exclusivement dans les couches qui reposent sur la craie.”*

Mr. Prestwich on his first visit obtained several specimens of worked flints from the quarrymen, but could not find any himself. Revisiting the pits, however, shortly afterwards with Mr. Evans, he was shown one which had been left “*in situ*” for his inspection. It was 17 feet from the surface, in undisturbed ground. Photographic views of the section were taken by

* And Mons. Buteux, in his memoir “La Géologie du département de la Somme,” writes thus.—“Ainsi il est bien établi, et je le répète: les objets que nous allons décrire ne se trouvent ni dans le limon argilo-sableux ou terre à briques qui forme la couche supérieure, ni dans les lits intermédiaires d’argile plus ou moins pure, de sables et de petits cailloux. * * * * Mais ils se rencontrent exclusivement dans la véritable diluvium c’est-à-dire dans le dépôt qui renferme les restes des espèces animales de l’époque qui a précédé immédiatement le cataclysme par lequel elles ont été détruites. Il ne peut y avoir aucun doute à cet égard.”

Quoted in “*Antiquités Celtiques et Antédiluviennes*,” vol ii, p. 9.

Mons. Faure of Amiens, and having obtained copies from that gentleman, I am glad to have an opportunity of exhibiting them to this society.

Later on in the year Mr. Flower obtained a very perfect specimen of a flint instrument from these beds himself*; and about the same time Mons. Gaudry (Membre de l' Institut,) examined a fresh section, with the most satisfactory results, for no fewer than nine implements were discovered associated with remains of rhinoceros, hippopotamus and mammoth.†

Besides visiting Amiens, Mr. Prestwich went to Abbeville, Moulin-Quignon, St. Gilles and Menchecourt, at all of which places he appears to have found the deposits occurring much in the same order as those of St. Acheul.

Menchecourt is especially interesting on account of the admixture of marine and freshwater shells in one of its beds, and the great quantity of Mammalian remains found along with "Haches" in the lower stratum of sub-angular gravel.‡

The bones in question are those of *Elephas primigenius*, *Rhinoceros tichorhinus*, *Cervus Somonensis*, *Cervus tarandus-priscus*, *Ursus spelæus*, *Hyæna spelæa*, *Bos primigenius*, *Equus adamaticus* and a *Felis*.

Mr. Prestwich examined M. Boucher de Perthes' collection

* Abstract of Proceedings Geol. Soc., No. 36, 22nd June, 1859. *Times*, 18th Nov. 1859.

† "*L' Institut*," 5th Oct. 1859.

‡ A section examined by Mr. Prestwich consisted of—1. A mass of brown sandy clay with angular fragments of flints and chalk rubble. No organic remains. Base very irregular and indented into No. 2; average thickness 2 to 12 feet. 2. A light coloured sandy clay, ("sable gras" of the workmen,) analogous to the *Loess*, containing land shells, pupa, helix, and clausilia of recent species. Flint axes and Mammalian remains are said to occur occasionally in this bed; average thickness 8 to 25 feet. 3. White sand ("sable aigre") with 1 to 2 feet of sub-angular flint gravel at base. This bed abounds in land and freshwater shells of recent species of the genera helix, succinea, cyclas, pisidium, valvata, bithynia, and planorbis, together with the marine *Buccinum undatum*, *Cardium edule*, *Tellina solidula*, and *Purpura lapillus*. Mr. P. also found the *Cyrena consobrina*, and *Littorina rudis*. With them are associated numerous Mammalian remains and it is said flint implements; average thickness 2 to 6 feet. 4. Light coloured sandy marl, in places very hard with helix, zonites, succinea, and pupa; not traversed.

at Abbeville, and appears to have been much astonished at its beauty and extent. The opportunity was a favourable one for comparison, and he did not fail to profit by it, for in speaking of the different appearances of flint instruments from various localities in the Somme valley, he makes the following important observations :—

“In looking over the large series of flint implements in M. de Perthes’ collection, it cannot fail to strike the most casual observer that those from Menchecourt are almost always white and bright, whilst those from Moulin-Quignon have a dull yellow and brown surface; and it may be noticed that whenever (as is often the case,) any of the matrix adheres to the flint it is invariably of the same nature, texture and colour as that of the respective beds themselves.”

“In the same way at St. Acheul where there are beds of white and others of ochreous gravel, the flint implements exhibit corresponding variations in colour and adhering matrix; added to which as the white gravel contains chalk *débris*, there are portions of the gravel in which the flints are more or less coated with a film of carbonate of lime; and so it is with the flint implements which occur in those portions of the gravel.”

From such plain facts as these, he justly infers a contemporaneous deposition of the instruments and the gravel in which they are imbedded. It is well known that flints become deeply discoloured when in ochreous deposits, whitened and opaque in argillaceous matter, encrusted with carbonate of lime when imbedded in chalk; and here we find the “Haches” exactly in the same condition in this respect as the rough unworked flints which surround them—“a constituent part of the gravel” in fact, as Mr. Prestwich observes. There seems to be no doubt as to the age of the drift deposits in question; and Mr. Prestwich identifies them with the gravel of East Croydon, Wandsworth Common, and other places in the neighbourhood of London.

The predominant form of "Haches" found at Amiens varies very materially from that of the Abbeville specimens.

The former are generally long and pointed at one end, and appear to have been primeval spear heads.

Those from Abbeville, on the contrary, are oval and chipped to a comparatively fine edge all round. Mr. Evans seems to think they may have been used as sling-stones or hatchets.

The accompanying sketches, however, will convey a better notion of the two types than any description. (See plate V.)

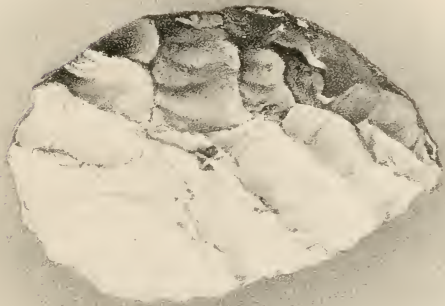
Before leaving this part of my subject, I would allude to the very able address delivered by Sir Charles Lyell, at the last meeting of the British Association, and which related almost entirely to the question now before us.

Having visited Amiens and Abbeville himself, and examined the drift beds in the valley of the Somme his words necessarily carry great weight with them.

The conclusions which he arrived at respecting the nature and age of the deposits in which the flint implements are found, may be gathered from the important passage quoted below.*

* "But while I have thus failed to obtain satisfactory evidence in favour of the remote origin assigned to the human fossils of Le Puy, I am fully prepared to corroborate the conclusions which have been recently laid before the Royal Society, by Mr. Prestwich, in regard to the age of flint implements associated, in undisturbed gravel in the north of France, with the bones of Elephants at Abbeville and Amiens. These were first noticed at Abbeville, and their true geological position assigned to them by M. Boucher de Perthes in 1849, in his "*Antiquités Celtiques*," while those of Amiens were afterwards described in 1855, by the late Dr. Rigollot. For a clear statement of the facts, I may refer you to the abstract of Mr. Prestwich's Memoir in the Proceedings of the Royal Society, for 1859, and I have only to add that I have myself obtained abundance of flint implements (some of which are laid upon the table,) during a short visit to Amiens and Abbeville. Two of the worked flints of Amiens were discovered in the gravel-pits of St. Acheul, one at the depth of ten, and the other of seventeen feet below the surface, at the time of my visit; and M. Georges Pouchet, of Rouen, author of a work on the "*Traces of Man*," who has since visited the spot, has extracted with his own hands one of these implements, as Messrs. Prestwich and Flower had done before him. The stratified gravel in which these rudely-finished instruments are buried, resting immediately on the chalk, belongs to the Post-Pliocene period, all the freshwater and land shells which accompany them being of existing species. The great number of the fossil instruments which have been likened to hatchets, spear-heads and wedges, is truly wonderful.

ABBREVILLE

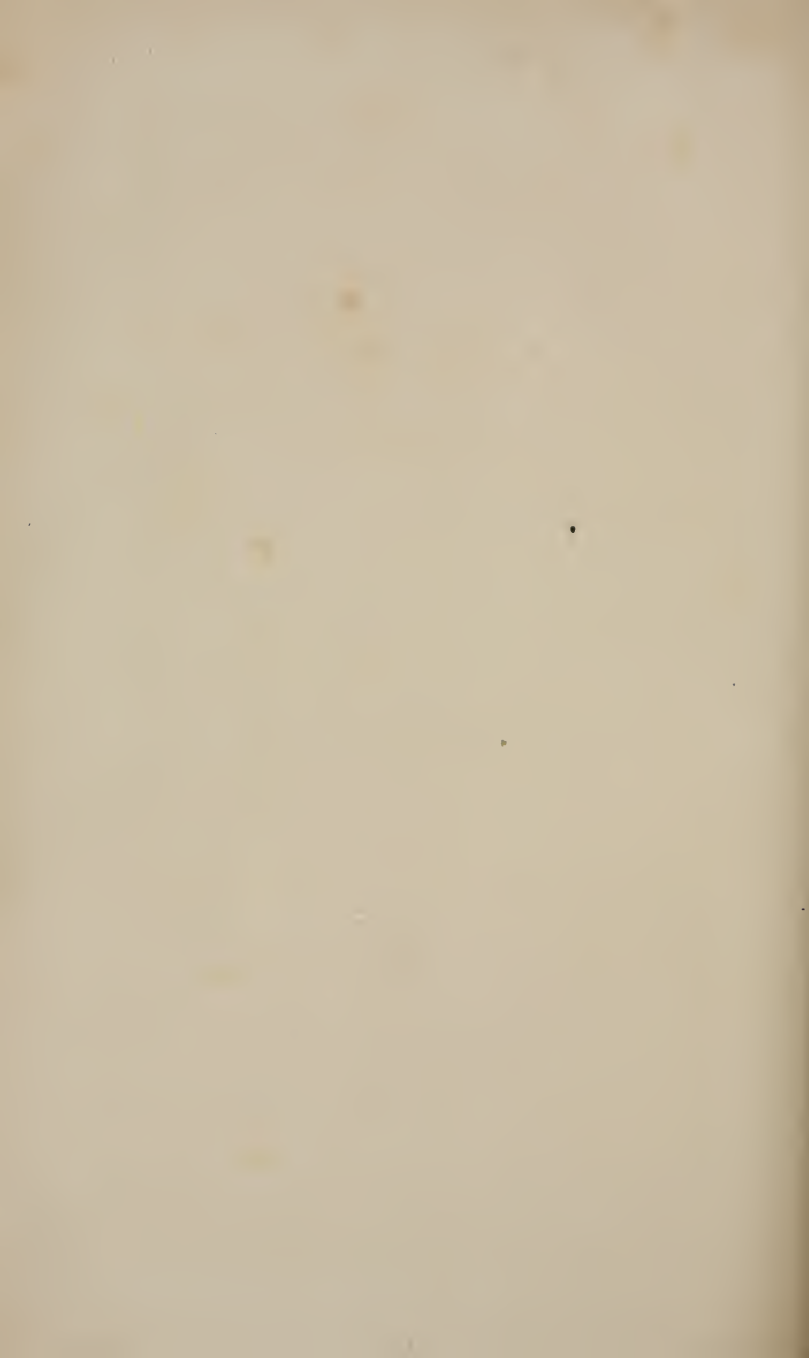


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Prodormant Forms of Flint Implements found in the Valley of the Somme

AMIENS





It is worthy of note, that long before M. Boucher de Perthes dreamed of his wonderful discoveries in the Valley of the Somme,* flint implements, very similar in form to the "Haches" from Amiens, were found and described in England. It appears that so far back as 1797,† a Mr. John Frere published a memoir, giving an account of the discovery of numerous flint implements in a bed of gravel, eleven feet from the surface, at Hoxne, in Suffolk.

In this same bed of gravel (which is stated to have been covered with sand and brick earth) were also found bones of

More than a thousand of them have already been met with in the last ten years, in the valley of the Somme, in an area fifteen miles in length."

"I infer that a tribe of savages, to whom the use of iron was unknown, made a long sojourn in this region; and I am reminded of a large Indian mound which I saw in St. Simonds Island, in Georgia; a mound ten acres in area, and having an average height of five feet, chiefly composed of cast away oyster shells, throughout which arrow heads, stone axes, and Indian pottery are dispersed. If the neighbouring river, the Alatomaha, or the sea, which is at hand, should invade, sweep away, and stratify the contents of this mound, it might produce a very analogous accumulation of human implements, unmixed perhaps, with human bones."

"Although the accompanying shells are of living species, I believe the antiquity of the Abbeville and Amiens flint instruments to be great indeed, if compared to the times of history or tradition."

"I consider the gravel to be of fluvial origin, but I could detect nothing in the structure of its several parts indicating cataclysmal action; nothing that might not be due to such river-floods as we have witnessed in Scotland during the last half century. It must have required a long period for the wearing down of the chalk which supplied the broken flints for the formation of so much gravel at various heights, sometimes one hundred feet above the present level of the Somme; for the deposition of fine sediment, including entire shells, both terrestrial and aquatic; and also for the denudation which the entire mass of stratified drift has undergone, portions having been swept away, so that what remains of it often terminates abruptly in old river cliffs, besides being covered by a newer unstratified drift."

"To explain these changes I should infer considerable oscillations in the level of land in that part of France—slow movements of upheaval and subsidence, deranging, but not wholly displacing the course of the ancient rivers."

"Lastly, the disappearance of the Elephant, Rhinoceros, and other genera of quadrupeds now foreign to Europe, implies in like manner, a vast lapse of ages separating the era in which the fossil implements were formed, and that of the invasion of Gaul by the Romans."

* J'avais entrevu depuis longtemps cette race antédiluvienne et pendant bien des années anticipé sur la joie que j'éprouverais lorsque dans ces bancs que la géologie a si souvent déclarés déserts et antérieurs à l'homme, je trouverais enfin la preuve de l'existence de cet homme, ou à défaut de ses os, la trace de ses œuvres.—"*Antiquités Celtiques et Antédiluviennes*," vol. ii. p. 8.

+ Archæologia, vol. xiii., 1860.

some unknown animal, since presumed to have been those of the mammoth. Fully convinced of the artificial character of the flints, Mr. Frere regarded them as war implements “fabricated and used by a people who had not the use of metals”—and owing to the situation in which they were found, he was almost tempted to refer them “to a very remote period indeed—even beyond that of the present world.”

Geology had scarcely become a science, it must be remembered, when these remarkable words were written.* Mr. Prestwich, shortly after his return from France, visited this interesting locality, but did not succeed in finding any implements himself;—one of two specimens, said to have been dug out of the brick earth deposit during the previous winter, was, however, shown to him by the workmen.†

During his visit to Italy, at the commencement of last year, Dr. Falconer made several important discoveries in the ossiferous caverns in the hippurite limestone, between Palermo and Trapani in Sicily; and the examination of the Grotta di Maccagnone, in particular, yielded most extraordinary results.

The cave in question, which lies about a mile to the west of Carini, is situated on the north-east side of Monte Lungo, near its base, about a mile and a half from the sea.

In the bone breccia below the entrance of the cavern, remains of hippopotamus were met with in great abundance; and in the upper deposit of humus inside, were found bones of *Elephas antiquus*,‡ horns of two extinct species of *cervus*, besides bones of other ruminants. Of the lower deposits,

* I may here mention, *en passant*, that there is in the British Museum a flint implement, stated to have been found, together with an elephant's tooth, opposite Black Mary's, near Gray's Inn Lane in London. It originally formed part of the Sloane collection, and therefore must have been discovered some time anterior to 1750.

† Proceedings of Royal Society, 26th May, 1859.

‡ As yet no remains of *E. primigenius* have been discovered here, or in any of the Sicilian caves.

the one known commonly as “*ceneri impastate*” (concrete of ashes) was found to contain remains of a *felis* of the same size as *F. spelæa*, a large *ursus*, and several small ruminants.

But the extraordinary feature about the cave—which before proceeding further, I should state, is encrusted with stalagmite—is this: at a spot on the roof, where a large mass of breccia was observed, denuded partly of the stalagmitic covering, Dr. Falconer found teeth of ruminants and equus, shells of several species of *helix*, bits of carbon, and a vast abundance of flint and agate knives of human manufacture.*

At other places, and wherever he had the calcareous coating removed, he found similar remains; and at one spot, on breaking the stalagmite, a thick calcareo-ochreous layer containing numerous coprolites of a large *hyæna*, was found against the roof.

Dr. Falconer is of opinion that the knives, “the majority of which present definite forms—namely, long, narrow, and thin”— . . . “closely resemble, in every detail of form, obsidian knives from Mexico, and flint-knives from Stonehenge, Arabia, and elsewhere, and that they appear to have been formed by the dislamination, as films, of the long angles of prismatic blocks of stone. These fragments occur intimately intermixed with the bone splinters, shells, &c., in the roof-breccia, in very considerable abundance; amorphous fragments of flint are comparatively rare, and no pebbles or blocks occur within or without the case. But similar reddish flint or chert is found in the hippurite limestone near Termini.”†

And now, after reviewing carefully the whole of the evidence adduced here, it may fairly be asked—Taking for granted that the flint implements, which have been found so

* Abstract Proceedings of the Geol. Soc. No. 32, 4th May, 1859.

† Abstract Proceedings Geol. Soc. No. 36, 22nd June, 1859.

plentifully in the Valley of the Somme and elsewhere, owe their present forms to human agency,* how comes it to pass that not a single bone of the men who fashioned and used them has as yet been discovered? To such an enquiry, M. de Perthes replies: "Ayez patience; avant Cuvier, vous ignoriez complètement que la butte de Montmartre recélât des milliers de quadrupèdes de l'époque dont il s'agit.

"Si l'on vous eut dit qu'ils y étaient et surtout qu'ils représentaient des espèces n'existant plus sur la terre, vous auriez refusé de le croire. C'est que vous feriez encore si l'on vous annonçait qu'on vient de rencontrer un amas de restes humains, et vous ajouteriez que cette trouvaille est impossible.

"Or, en ceci vous vous tromperiez, car ce qui n'est pas vrai aujourd'hui le sera demain, et si ce n'est pas à Paris ou en France qu'on trouve cet ossuaire humain, ce sera ailleurs.

"Oui, cette découverte doit infailliblement avoir lieu; il suffit, pour cela, d'une fouille heureuse, du retrait d'un lac on d'une baie, de l'éboulement, d'une montagne, &c.

"Alors ce ne sera pas un squelette isolé, c'en sera des milliers, parce qu'il est certain qu'antérieurement à la catastrophe diluvienne et peut être même à l'époque où elle arriva, les hommes étaient nombreux sur cette terre, et la preuve, c'est le nombre de leurs œuvres; par ce qui reste de ces monuments de pierre de ces haches, de ces outils en silex, on peut juger ce qu'il y en avait."†

But are we sure that human remains have not already been discovered, associated with bones of the mammoth, tichorrhine rhinoceros, and other extinct animals, in undisturbed deposits?

A little pamphlet, written in 1857, by Herr Robert Eisel,

* Mr. Wright, the Antiquary, and Dr. Ogden both doubt the artificial character of their objects: the former ascribing their peculiar forms to "violent and continued gyratory motion in water;" the latter, to chemical agency.—*Vide Athenæum*, Nos. 1651 and 1671.

† "Antiquités Celtiques et Antédiluviennes," avant propos. vol. ii, p. 13.

of Gera in Saxony, clearly proves, I think, that they have.*

It appears that in the gypsum quarries in the neighbourhood of Köstritz bones of *Elephas primigenius*, *Rhinoceros tichorhinus*, *Ursus spelæus*, *Bos primigenius*, &c., have been discovered, intermixed with undoubted remains of man, in beds of clay covered with *débris* from the surrounding mountains. From the angular form of the fragments composing these *débris*, it may be inferred that they were not exposed to protracted aqueous action, but were deposited, soon after they were torn from their parent masses, in the crevices in which we find them at the present day.

This Southern diluvium must not be confounded with the Northern drift, which contains large rounded boulders of Norwegian granite and *Galerites vulgaris*, from the chalk of the north,—for it consists of an irregular deposit such as any sudden inundation in a mountainous region is apt to sweep along before and leave behind it.

It is supposed that the upper basin of the river Elster was formerly a lake, whose banks were inhabited by man† and by

* Zeitschrift für die Gesammten Naturwissenschaften, Halle-ü-Saale. Sept. 1857. No. ix.

Zur Umgebung von Gera. Ein Beitrag zur Kenntniss der dasigen quaternären Gebilde, von Robert Eisel.

I acknowledge here, with much gratitude, the kind assistance afforded me by Dr. F. Bialloblotzky of Göttingen, who procured a copy of R. Eisel's memoir, and made an admirable digest of it for me.

+ The manner of life of this primeval race may perhaps not have been unlike that of the amphibious inhabitants of Lake Prasias, described by Herodotus. "Platforms supported upon tall piles‡ stand in the middle of the lake, which are approached from the land by a single narrow bridge. At the first the piles which bear up the platforms were fixed in their places by the whole body of the citizens, but since that time the custom which has prevailed about fixing them is this:—They are brought from a hill called Orbêlus, and every man drives in three for each wife that he marries. Now the men have all many wives apiece, and this is the way in which they live. Each has his own hut, wherein he dwells, upon one of the platforms, and each has also a trap door giving access to the lake beneath; and their wont is to tie their baby children by the foot with a string, to save them from rolling into the water. They feed their horses and their other beasts upon

‡ Robt. Eisel mentions that a semi-petrified trunk of an oak tree which evidently had been prepared by the hand of man for use, as it bore on its surface indubitable marks of the axe by which its work had been commenced, was found at Zwötzen, embedded in clay and boulders, twelve feet below the surface.

numerous animals, among which were *Elephas primigenius*, *Rhinoceros tichorrhinus*, *Bos primigenius*, *Cervus tarandus*, *Equus fossilis*, *Lepus diluvianus*, *Ursus spelæus*, *Hyæna spelæa*, *Felis spelæa*. When the lake, swollen at some time or other by excessive torrents, overflowed its banks, many of the inhabitants of the district were drowned, and when a part of the mountain which hemmed in the water suddenly gave way, the dead bodies were carried downwards by the flood into the crevices and hollows of the country below. The bones

fish, which abound in the lake to such a degree that a man has only to open his trap-door and to let down a basket by a rope into the water, and then to wait a very short time, when up he draws it quite full of them.”—

Book V. (Terpsichore,) chap. xvi.

“Recent discoveries in the lakes of central Europe, particularly those of Switzerland, have confirmed in the most remarkable way this whole description of Herodotus. It appears that at an ancient date, probably anterior to that of the immigration of the Celts, there lived on most of these lakes a race or races, who formed for themselves habitations almost exactly like those which Herodotus here describes. At a short distance from the shore, rows of wooden piles were driven into the muddy bottom, generally disposed in lines parallel to the bank, but not at regular intervals, upon which there can be no doubt that platforms were placed and habitations raised. Within the area occupied by the piles, and over the space immediately adjoining, are found at the bottom often occupying a depth of several feet, objects of human industry, consisting of rude pottery and various implements in stone, bone and bronze.”

“Everything marks the high antiquity of these remains. The pottery is coarse in character and shaped by the hand; it has scarcely a trace of ornament. The implements in stone and bone, indicate a nation in the most primitive condition. The complete or almost complete absence of iron is most significant. Also it must be observed that there is in most places a deposit of mud, the growth of centuries, covering the remains, in the whole of which there are no implements. Bones of animals which had apparently been killed for food, appear throughout the whole stratum of mud in which the implements are found. In one case at least, a remnant of the bridge was discovered, by which the inhabitants communicated with the land. (See a letter from M. Fred. Troyon to M. Pictet, in the “*Bibliothèque Universelle de Genève*,” Mai, 1857,) and an elaborate article in the “*Mittheilungen der Antiquarischen Gesellschaft in Zurich*,” for 1854, by Dr. Ferdinand Keller. Compare also “*Die Pfahlbau-Alterthümer von Moosseedorf im Kanton Bern*,” by M. M. Yahn and Uhlmann, published in 1857. Antiquaries seem fully agreed that these are among the most primitive remains in Europe, belonging either to the early Celtic, or perhaps more probably to a pre-Celtic period. We may suspect that this people occupied the lakes for security at the time when the Celts began to press upon them; but that they failed to maintain themselves, and gradually yielded and were absorbed in the immigrants. In some places it is evident that the platforms were finally destroyed by fire, abundance of charred wood being found above all the rest of the remains. A similar mode of life to that here described by Herodotus, and apparently practised by the early inhabitants of Switzerland, is found among the Papous of New Guinea. (See the *Histoire of Dumont d'Urville*,” tom. iv, p. 607.)

Rawlinson's Herodotus, vol. iii, p. 226, 227.

were found all mingled together in a mass of *débris* twenty-four feet in depth, so that nobody could doubt the co-existence of the creatures in life. They were apparently killed by the same cause, buried at once in the same grave, and covered by the same materials which were swept along by the same forces in operation at the same time.

Many of the bones are very much broken and cannot be easily determined. On one occasion a perfect skull was discovered, but soon destroyed by ignorant labourers; only a part of the jaw and some teeth were rescued, and these are now in the Geological collection of the Gymnasium of Gera.

In the British Museum there are also bones belonging to the series under consideration, bearing the following inscription:—

“Human parietal bone and portion of femur, found in 1820, “at a depth of fifteen yards below bones of Rhinoceros, &c., “in Winter’s Gypsum quarry, at Köstritz.”

This German discovery is, I think, far from being of the same nature as the one lately made in the neighbourhood of Oxford, and which I will briefly describe here. The extensive gravel beds of Yarnton, having been laid open a few years ago, during the construction of the railway, grinders and tusks of the mammoth commingled with human bones and fragments of pottery were brought to light in great abundance.

Professor Phillips, who visited the locality, found at a depth of sixteen feet from the surface,—first, Oxford clay; next a bed of glacial drift, on the top of which were a great many elephant’s teeth; and lastly, an irregular series of gravel, sand, and loam deposits, with dark patches occurring throughout the layers. These darker parts being closely examined were found to be nothing more than ancient British burial places full of human bones and pottery, and from their immediate proximity to the remains of the extinct elephant, a superficial observer might very easily have concluded that they had been simultaneously deposited.

I feel fully persuaded, however, that no mistake of this kind has occurred at Köstritz, and I see no way of resolving the difficulty but by acknowledging contemporaneity in life of the various extinct organisms found there.

Robert Eisel seems to think that the indubitable co-existence of our race with the mammoth tichorrhine, rhinoceros, cave bear, &c., rather proves that these animals lived at a much more recent period than is generally admitted, than that man commenced his existence at an earlier date than the usual chronology warrants.* And this view I think is not rendered less tenable by such facts as the following:—

The celebrated mammoth, discovered at the commencement of the present century in the ice-bound shores of the river Lena, in Siberia, appears to have been in such a wonderful state of preservation when disintombed, that the Yakoutski are said to have fed their dogs on as much of its flesh as was not devoured by beasts of prey.

There seems to be no reason for doubting the truth of this statement; at any rate the skeleton of the animal together with a considerable portion of its skin and hair, as well as the eyeballs and the hoofs, may be seen in the Imperial Academy of St. Petersburg at the present day.

Remains too of this primeval elephant have been found in turbarry near Holyhead, and its tusks in most instances are so little altered that they are constantly employed for the same purposes as ordinary ivory.† Pallas in his “*Voyage dans l’Asie Septentrionale*,” records the discovery of the carcase of a tichorrhine rhinoceros in frozen soil, and the skin, tendons and flesh appear to have been perfectly unchanged.‡

* Mr. Prestwich at the conclusion of his memoir on the valley of the Somme flint implements, expresses precisely similar opinions, for he remarks that—“he does not consider that the facts as they at present stand, carry back Man in past time, more than they bring forward the great extinct Mammals to our own time, the evidence having reference only to relative and not to absolute time.”—

Proceedings of the Royal Society, vol. x, No. 35, p. 58.

+ See the story of “The Ivory Mine” in Chambers’s Papers, vol. ii.

‡ Op. cit. pp. 130-132, quoted by Prof. Owen in his “*Palæontology*,” p. 366.

That gigantic elk, *Megaceros Hibernicus*, has been found abundantly in the peat bogs of Ireland and the Isle of Man, also in Lancashire* along with remains of *Hippopotamus major*. *Bos longifrons*, though now extinct, we know for certain was co-existent with the earliest human inhabitants of these isles.

At a time like the present when a disposition to rush into extreme views respecting the antiquity of our race is so constantly manifested amongst us, it is well to bear in mind such facts as these, for I cannot help thinking they counteract in some measure the revolutionizing tendency of the evidence we have been principally considering here. The whole question however, it appears to me, is in such a peculiarly delicate position at present, that to attempt to arrive at any definite conclusions respecting it, is well nigh impossible. The wiser course by far is to exercise that habit of mind which a reviewer of Mr. Darwin's work on the "Origin of Species" has recommended to "all students of the hypothesis set forth there,†—the "thätige skepsis" of Goethe—doubt which so loves truth that it neither dares rest in doubting, nor extinguish itself by unjustified belief.

* Owen's "British Fossil Mammals and Birds," p. 467.

† "Times," 26th December, 1859.

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